

SECTION 07 24 00

EXTERIOR INSULATION AND FINISH SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Composite wall cladding of rigid insulation and reinforced finish coating ("Class PB").
- B. Drainage and water-resistive barriers behind insulation board.

1.02 RELATED REQUIREMENTS

- A. Section 09 21 16 - Gypsum Board Assemblies: Wall substrate construction.
- B. Section 05 40 00 - Cold-Formed Metal Framing: Sheathing on metal studs.
- C. Section 07 60 00 - Sheet Metal Flashing and Trim: Perimeter flashings.
- D. Section 07 90 05 - Joint Sealers: Perimeter and penetration sealants.

1.03 REFERENCE STANDARDS

- A. ASTM C 578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation; 2007.
- B. ASTM C 1397 - Standard Practice for Application of Class PB Exterior Insulation and Finish Systems; 2005.
- C. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2008.
- D. ASTM E 2273 - Standard Test Method for Determining the Drainage Efficiency of Exterior Insulation and Finish Systems (EIFS) Clad Wall Assemblies; 2003.
- E. ICC-ES AC219 - Acceptance Criteria for Exterior Insulation and Finish Systems; 2004 (Editorially revised 2006 & 2007 and April 2008).
- F. NFPA 268 - Standard Test Method for Determining Ignitability of Exterior Wall Assemblies Using a Radiant Heat Energy Source; 2007.
- G. NFPA 285 - Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components; 2006.

1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate wall joint patterns, joint details, and molding profiles.
- C. Product Data: Provide data on system materials, product characteristics, performance criteria, and system limitations.
- D. Selection Samples: Submit manufacturer's standard range of samples illustrating available coating colors and textures.

1.05 QUALITY ASSURANCE

- A. Maintain copy of specified installation standard and manufacturer's installation instructions at project site at all times during installation.
- B. EIFS Manufacturer Qualifications: Provide all EIFS products other than insulation from the same manufacturer with qualifications as follows:
 - 1. Member in good standing of EIMA (EIFS Industry Members Association).
 - 2. Manufacturer of EIFS products for not less than 5 years.
 - 3. Manufacturing facilities ISO 9001 certified.
- C. Insulation Manufacturer Qualifications: Approved by manufacturer of EIFS and approved and labeled under third party quality program as required by applicable building code.
- D. Installer Qualifications: Company specializing in EIFS work, with not less than 3 years of documented experience, and approved by the EIFS manufacturer.

1.06MOCK-UP

- A. Construct mock-up of typical EIFS application on specified substrate, size 24 x 24 inches, and including flashings, joints, and edge conditions.
- B. Locate mock-up where directed.

1.07DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver materials to project site in manufacturer's original, unopened containers with labels intact. Inspect materials and notify manufacturer of any discrepancies.
- B. Storage: Protect adhesives and finish materials from freezing and temperatures in excess of 90 degrees F.
 - 1. Protect Portland cement based materials from moisture and humidity. Store under cover off the ground in a dry location.
 - 2. Protect insulation materials from exposure to sunlight.

1.08FIELD CONDITIONS

- A. Do not prepare materials or apply EIFS during inclement weather unless areas of installation are protected. Protect installed EIFS areas from inclement weather until dry.
- B. Do not install coatings or sealants when ambient temperature is below 40 degrees F.
- C. Do not leave installed insulation board exposed to sunlight for extended periods of time.

1.09WARRANTY

- A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.
- B. Provide manufacturer's standard material warranty, covering a period of not less than 5 years.
- C. Provide separate warranty from installer covering labor for repairs or replacement for a period of not less than 5 years.

PART 2 PRODUCTS

2.01MANUFACTURERS

- A. Acceptable Manufacturers:
 - 1. ParexLahabra, Inc: www.parex.com.
 - 2. Substitutions: See Section 01 60 00 - Product Requirements.

2.02EXTERIOR INSULATION AND FINISH SYSTEM

- A. Exterior Insulation and Finish System: DRAINAGE type; reinforced finish coating on mechanically-fastened insulation board over sheet-type combination drainage layer/water-resistive barrier over substrate; provide a complete system that has been tested to show compliance with the following characteristics; include all components of specified system and substrate(s) in tested samples.
- B. Fire Characteristics:
 - 1. Flammability: Pass, when tested in accordance with NFPA 285.
 - 2. Ignitibility: No sustained flaming when tested in accordance with NFPA 268.
 - 3. Potential Heat of Foam Plastic Insulation Tested Independently of Assembly: No portion of the assembly having potential heat that exceeds that of the insulation sample tested for flammability (above), when tested in accordance with NFPA 259 with results expressed in Btu per square foot.
- C. Water Penetration Resistance: No water penetration beyond the plane of the base coat/insulation board interface after 15 minutes, when tested in accordance with ASTM E 331 at 6.24 psf differential pressure with tracer dye in the water spray; include in tested sample at least two vertical joints and one horizontal joint of same type to be used in construction; disassemble sample if necessary to determine extent of water penetration.
- D. Drainage Efficiency: Average minimum efficiency of 90 percent, when tested in accordance with ASTM E 2273 for 75 minutes.
- E. Freeze-Thaw Resistance: No cracking, checking, crazing, erosion, blistering, peeling, delamination, or corrosion of finish coating when viewed under 5x magnification after 10 cycles, when tested in accordance with ICC-ES AC 219 or 235.
- F. Weathering Resistance: No cracking, checking, crazing, erosion, blistering, peeling, delamination, or corrosion of finish coating when viewed under 5x magnification after 2000 hours of accelerated weathering conducted in accordance with ASTM G 153 Cycle 1 or ASTM G 155 Cycle 1, 5, or 9.
- G. Water Degradation Resistance: No cracking, checking, crazing, erosion, blistering, peeling, delamination, or corrosion of finish coating after 14 days exposure, when tested in accordance with ASTM D 2247.
- H. Mildew Resistance: No growth supported on finish coating during 28 day exposure period, when tested in accordance with ASTM D 3273.
- I. Abrasion Resistance Of Finish: No cracking, checking or loss of film integrity when tested in accordance with ASTM D 968 with 500 liters of sand.

2.03 MATERIALS

- A. Finish Coating Top Coat: Water-based, air curing, acrylic finish with integral color and texture.
 - 1. Texture: match existing.
 - 2. Color: As selected from manufacturer's range of standard colors.
- B. Base Coat: Fiber-reinforced, acrylic-based product compatible with insulation board and reinforcing mesh.
- C. Reinforcing Mesh: Balanced, open weave glass fiber fabric, treated for compatibility and improved bond with coating, weight, strength, and number of layers as required to meet required system impact rating.
- D. Insulation Board: Molded, expanded polystyrene board; ASTM C 578, Type I; with the following characteristics:
 - 1. Board Size: As recommended by EIFS finish manufacturer.
 - 2. Board Size Tolerance: plus/minus 1/16 inch from square and dimension.
 - 3. Board Thickness: 1-1/2 inches.
 - 4. Thickness Tolerance: plus/minus 1/16 inch maximum.
 - 5. Board Edges: Square.
 - 6. Thermal Resistance (R factor per 1 in (25.4 mm)) at 75 degrees F: 3.60.
 - 7. Board Density: 0.9 lb/cu ft.
 - 8. Compressive Resistance: 10 psi.
 - 9. Surface Burning Characteristics: Flame spread/Smoke developed index of 25/450, when tested in accordance with ASTM E 84.
- E. Combination Drainage Layer/Water-Resistive Barrier: Air- and water-resistive sheet complying with ASTM E 1677 Type I, dimpled or otherwise profiled to maintain air and drainage space between insulation board and sheathing; MINIMUM water vapor permeance of 20 perms; furnished or approved by EIFS manufacturer. Tyvek "StuccoWrap".

2.04 ACCESSORY MATERIALS

- A. Insulation Fasteners: Fastener and plate system appropriate for substrate and as recommended by EIFS manufacturer.
- B. Trim: EIFS manufacturer's standard PVC or galvanized steel trim accessories, as required for a complete project and including starter track, and drainage accessories.
- C. Sealant Materials: As recommended by EIFS manufacturer.

PART 3 EXECUTION

3.01 GENERAL

- A. Install in accordance with EIFS manufacturer's instructions and ASTM C 1397.
- B. Where different requirements appear in either document, comply with the most stringent.
- C. Neither of these documents supercedes the provisions of the Contract Documents that define the contractual relationships between the parties or the scope of work.

3.02 EXAMINATION

- A. Verify that substrate is sound and free of oil, loose materials, or protrusions that could interfere with EIFS installation and is of a type and construction that is acceptable to EIFS manufacturer. Do not begin work until substrate and adjacent materials are complete and thoroughly dry.
- B. Verify that substrate surface is flat, with no deviation greater than 1/4 in when tested with a 10 ft straightedge.

3.03 INSTALLATION - WATER-RESISTIVE BARRIER

- A. Mechanically attach sheet materials to substrate using fasteners and fastener spacing recommended by EIFS manufacturer.
- B. Seal all substrate transitions and intersections with other materials to form continuous water-resistive barrier on exterior of sheathing, using method recommended by manufacturer.
- C. Lap flashing tape at least 2 inches on each side of joint or transition.

3.04 INSTALLATION - INSULATION

- A. Install in accordance with manufacturer's instructions.
- B. Install back wrap reinforcing mesh at all openings and terminations that are not to be protected with trim.
- C. On wall surfaces, install boards horizontally.
- D. Place boards in a method to maximize tight joints. Stagger vertical joints and interlock at corners. Butt edges and ends tight to adjacent board and to protrusions. Achieve a continuous flush insulation surface, with no gaps in excess of 1/16 inch.
- E. Rasp irregularities off surface of installed insulation board.
- F. Mechanical Fastening: Space fasteners as recommended by EIFS manufacturer.

3.05 INSTALLATION - FINISH

- A. Base Coat: Apply in thickness as necessary to fully embed reinforcing mesh, wrinkle free, including back-wrap at all terminations of the EIFS. Install reinforcing fabric as recommended by EIFS manufacturer.
 - 1. Lap reinforcing mesh edges and ends a minimum of 2-1/2 inches.
 - 2. Allow base coat to dry a minimum of 24 hours before next coating application.
- B. Apply finish coat after base coat has dried not less than 24 hours, embed finish aggregate, and finish to a uniform texture and color.
- C. Apply sealant at finish perimeter and expansion joints in accordance with Section 07 90 05.

3.06 CLEANING

- A. Clean EIFS surfaces and work areas of foreign materials resulting from EIFS operations.

3.07 PROTECTION

- A. Protect completed work from damage and soiling by subsequent work.

END OF SECTION